

Effective Learning Experiences with UDL in teacher training at Universitiesⁱ

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Abstract

Il governo persegue l'implementazione delle categorie di competenze, definite dalla 'Definizione e Selezione delle Competenze' (DeSeCo; OCSE 2014), nel contesto delle misure di gestione delle politiche educative, ad esempio nelle linee guida o nei programmi di studio per le istituzioni educative. Nella prima parte il seguente articolo mostra il significato delle tre categorie di competenze per le scienze della formazione (1). Nella seconda, viene descritto il contesto della politica educativa in Italia e Alto Adige in merito all'inclusione (2). In questo contesto, si possono dedurre punti di partenza concreti per la professionalizzazione degli specialisti pedagogici (3). Nella quarta parte viene fornito un esempio di come questi elementi possano essere incorporati nella formazione accademica degli insegnanti. (4). Infine, sulla base dei risultati delle ricerche sulla formazione degli insegnanti si esprimono ipotesi sulle connessioni tra la qualità dell'offerta e l'idoneità soggettiva dei requisiti e delle competenze accademiche degli studenti.

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The government pursues the implementation of the competence categories, defined by ‘Definition and Selection of Competencies’ (DeSeCo; OECD 2014), in the context of education policy management measures e.g. in framework guidelines or study programs for educational institutions. Introductorily the following article shows the understanding of the three competence categories to the educational sciences (1). Secondly, we outline the educational policy context given in Italy using the prominent topic of inclusion as an example (2). Based on these, some more concrete initial points for professionalization of pedagogical specialists can be outlined (3). In a fourth step the development of a teaching program is given as an example how these elements could be incorporated in an academic teacher training (4). According to the discussion of results of actual teacher education research hypotheses on the connections between supply quality and the subjective fit of the students’ academic requirements and competences are expressed.

Parole chiave: Comunicazione multimodale; Persone-Ambiente-Teoria; Professionalizzazione; Garanzia della qualità nella formazione degli insegnanti.

Keywords: Multi-modal communication; Person-Environment-Theory; professionalization; quality assurance in teacher training.

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1. DeSeCo competence categories in the theoretical framework of educational sciences

In our paper the three policy driven competences, acting autonomously, using tools interactively, and working in social-cultural heterogeneous groups are transmitted to the master's study program in primary education. In doing so it is aimed to illustrate the path of implementation of a global-politically conceived guideline from the state, administrative and organizational-institutional levels of control to interaction at the level of the processing people. Furthermore, an attempt is made to link the directive with original pedagogical basic ideas. The historical-systematic view of general pedagogy shows that inclusive approaches have always been part of didactic considerations. Its approach to general didactics may lie in the fact that the discipline is in dialogue with other sciences, takes up new strategies and examines their special possibilities and limits.

A term definition is prefixed. The term 'media' is seen as use of methods or tools in this context. The definition includes language and images moreover writing as well as digital information and communication devices. Only the appropriate selection and the safe handling ensures usage at its best. Using media empowers people to tab realities, e.g. studying original documents or even summarizing experiences in own words. Moreover, media enables to construct reality by interactive application in self-interest, in the general interest or and social cohesion. Therefore, it is important to keep knowledge of prerequisites and respectively effects of communication social interaction in mind. Besides, media helps to raise awareness for facts from outside the individual human perception (cf. Baake, 1997, p. 4) e.g. conservation of historical artefacts in chronicles or slowdown of very quick movements to single moments with the help of technical devices.

Heterogeneity of groups can be described in the dimensions social, family, economic and cultural background, biographical experiences or physical constitution (cf. Wischer, 2009, p. 3). In teaching and learning situations, the linguistic expressiveness, reading skills and constructive problem solving of the individual group members can be different as well. In order to stimulate and keep learning processes going on, it is important to be aware of the students' special interests and needs.

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By the fact that people are able to make decisions, draw up and implement plans or represent interests based on information as well as balance arguments and consequences, they demonstrate independence of thought and action. Reflectiveness of one's own knowledge, experiences and thoughts is central to the categories of competencies.

Schaller reminds us, that the merge of pedagogical and policy interventions is absolutely necessary (Schaller, 1998, p. 3). According to these both domains have to be seen connected, however not in a hierarchical dependence.

2. Context of educational policy in Italy and Alto Adige for Inclusion

In Italy, the idea to create a "school for all" came up in the early 1960's. The official process of integrating all students with disabilities in common classes were starting on a legislative level through two laws, enacted in 1971 (art. 28 Law 118/1971) and in 1977 (Law 517/1977). The first one declares the insertion of children with mild disabilities in the classes of publicly-maintained schools. The second one prescribed to activate, both in primary and middle schools, procedures to integrate pupils with disabilities by providing support teachers. The Falcucci document (C.M. August 8, 1975, No. 227) facilitates the process of integration in the educational institutional system. It postulates that inclusion should start with the methodological and conceptual transformation of the entire educational system.

Finally, the publicly-maintained school as a place for learning for all children was politically promoted nationwide and socially supported by the closure of the psychiatric institutions in 1978. The new configured position of the 'support teacher' was established to handle the situation in parallel in schools and classes. In the meantime, the teacher training has been completely reformed.

The framework for all disability issues is based upon the law 104/92. It describes general rules on socio-economic inclusion of persons with disabilities, including provisions for reasonable accommodation. Since the Salamanca Statement (UNESCO, 1994) and more recently with the United Nations Convention on the Rights of Persons with Disabilities of 2006 (UN, 2006), the term integration encloses the place for the inclusion as well as the principle of education for all. Therefore, inclusion is an advancement of the integrational concept and is characterized as an intentional and

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deliberate process which concerns the full inclusion in every context and in particular in the cultures, policies and practices of schools (Booth & Ainscow, 2002). Inclusion is dedicated for all students in class and not just for those with an ICD diagnosis (International Statistical Classification of Diseases and Related Health Problems, 2011) or DSM-V (Diagnostic and Statistical Manual of Mental Disorders, 2013) diagnosis. According to this, it relates primarily on contexts and learning environments with the aim to break down obstacles and barriers to participation within the school, society and in all areas of life. With the directive on Special Educational Needs, the Ministry of Education, Universities and Research in Italy (MIUR, 2012) guarantees the unity of national educational provision. Students who have non-ordinary learning difficulties have the right to didactically personalization and individualization teaching and learning processes according to their skills. In essence, the directive of MIUR has set itself the objective to provide protection to all those situations in which there is a disorder clinically founded, diagnosable but not falling in the forecasts of the law 104/92 nor in those of the law 170/2010 (new rules regarding specific learning disorders). In the preamble of the directive (MIUR, 2012). It is specified that "each student, with continuity or for certain periods, may show special educational needs: or for physical, biological, physiological reasons or even for psychological, social reasons, with respect to which is necessary for the schools to offer adequate and personalized response" (MIUR, 2012, p. 1). Teachers can use personalized education plans to implement individualized educational processes and pupils can use compensatory tools to support their learning processes.

Within the General Frameworks for Primary and Secondary School ⁱⁱ states, that school is based on the concept of inclusion and the enhancement of individual differences (General Framework for Primary and Secondary School, 2009, p. 17). From the educational policies point of view, it is important that educational specialists in the primary sector prevent development problems in early childhood education biographies (primary prevention) or mitigate existing problems by using appropriate measures (secondary prevention). In schools, the main priority is to support the existing impairments adequately (tertiary prevention). In this sense, the Universal Design for Learning (UDL) approach could represent a point of reference that assist teachers to design accessible learning environments and to support inclusive process. An educational community

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that from the outset offers many options for the different needs of students and recognizes obstacles to learning that interfere with the skills of pupils.

3. Aspects for appropriate professionalization in pedagogical fields

3.1 Organizational and pedagogical conditions for inclusive education

Karlegger and Meraner (2010) provide an insight into the activities of inclusion in German speaking educational institutions in Alto Adige. In consistence with the pedagogical department of the German School Authority they summarize that inclusion as learning with a common subject as defined by Feuser can be found more in kindergarten and primary school, than in middle and secondary schools (Feuser, 1998, p. 63). A practical example illustrates that integration teachers in secondary schools usually work intensively on the objectives of an individual education plan (IBP), which may deviate from the competence objectives of the framework guidelines in some areas. If there is no integration expert involved, teachers often use the model of internal differentiation to support learning processes (Prenzel, 2015, p. 9). The learning objective is the same for the entire learning group, only differentiated by means of technical aids or the support of learners through pupil feedback and evaluation of other performance-relevant data (Bray & McClaskey, 2013). Adapting the lessons in progress to learning relevant differences is a so-called active reaction. The special educational task does not differ from that of general didactic at that point (Rödler, 2018). Referring to the entrust of general pedagogy and their reflections about fundamental questions that affect all sub-disciplines, the aim of academic professionalization is, to acquire knowledge about options of planning learning opportunities in kindergarten and school as well as knowing the limits of the models in their practical application. The link between theory and practice is the guiding interest of all actors. Lecturers at Free University of Bolzano relate mainly the current state of educational theory and research to specific questions of the educational institutions of kindergarten and primary school in Alto Adige. The rearrangement of lectures and laboratories in winter term 2018/19 aims to enable students to design didactic playing, learning and working environments in a way that individual learning requirements can be taken into account as far as possible. Keeping the individual child in mind during teaching and learning is a huge

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duty and goes even often beyond the limits of a teacher's perception capacity in everyday work life (cf. Wischer, 2009, p. 3). In order to deal with this dilemma resource-efficiently, Klippert (2010, p. 18) focuses on cooperative learning, the promotion of learning competences and consistent work instruction. These strategies ensure that the performance gap between stronger and weaker learners is not too widespread. If there is a particular need for support and/or differentiation, Klippert continues, it is legitimate to outsource the support. Following the Hattie findings on the influence of teacher- or learner-controlled resources on learning performance (2012, p. 251), especially the meta-cognitive and self-regulating factors confirm high effect strengths, e.g. Evaluation and reflection ($d^{iii} = 0.75$), support by fellow students ($d = 0.83$) or verbalization and hypothesis development ($d = 0.55$). Schratz & Westfall (2010, p. 27) prefer that teachers use their knowledge and skills in a way that learners take over responsibility for the learning process and personalize it on their own, i.e. structure and control it independently (cf. Bray & McCalskey, 2010).

3.2 Approaches to learning environments for heterogeneous learning groups at the university

Teachers have to adopt an integrated approach between personalization and individualization of teaching and learning process in order to guarantee the right to equality and diversity, as well as bridging the differences. In order to design inclusive environments for all students that support learning processes by removing primary barriers, Universal Design for Learning (UDL) is one of several approaches and teaching methods. UDL proposes three principles of access to knowledge (Cast, 2011):

- (1) Provide Multiple Means of Representation. Diagrams, maps, iconic languages, video or simulations can help to grasp and comprehend information more efficiently.
- (2) Provide Multiple Means of Action and Expression. Some learners navigate their learning by writing a text; others express what they know by drawing concept maps. Using technology based tools or multiple means of communication facilitate resource management optimizes access to knowledge.

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(3) Provide Multiple Means of Engagement. Affect represents a crucial element to learning. In classes, you find learners who prefer to work alone, those who need their peer and others who get motivated by changing the social context.

The purpose of the principles of UDL is to develop learning expertise (Cast, 2011). In particular, an expert learner is someone who uses resources and knowledge (the “what of learning”), who have strategies and define goals (the “how of learning”) and who stays with the purpose and motivated (the “why of learning”). Enhancing individual differences and potentials by giving more space to mediation and facilitation tools that support students in their teacher training fosters the creation of bridges as well as the removal of obstacles to participation and to learning. The UDL guidelines are seen as a tool that supports educational design. An intentional and conscious design, which always starts from a recognition of educational needs of the class and supports learning-teaching paths that enhance the differences through personalization and individualization didactic. In the perspective of an education for all, the first principle is to meet the inclusive authorities by removing the primary barriers to participation, as well as identifying, together with the students, the most suitable facilitators and mediators for the representation of knowledge and understanding. Obviously, there are many variables that influence the quality of the learning and reiterates that the role of UDL is like a compass, which gives an orientation and does not propose recipes to ensure an outstanding learning output. In an exploratory study, Davies et al (2017) measured the effectiveness of a teacher training intervention on the three principles of the UDL and related strategies. They analyzed the impact of UDL on teachers’ training methods in the perception of 386 students before and after the training program. The results were compared with those of the control group, composed of 204 students without a specific training on UDL. Students of the course which were based on UDL reported a general positive change, particularly in the dimension relating to the first principle.

Additionally, to highlight the correlation between learning and teaching methods in higher education some examples were given illustrating the students’ perception of the relation between their achievement and the didactical interventions. Aquario, Pais and Ghedin (2017) identify supports and challenges which facilitate or hinder students’ access to knowledge in higher education. Equally they tried to describe the interaction of

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elements in knowledge construction. The results of the qualitative survey show that 86% of the 144 questioned students believe that exams are an important part of their learning process. For 77% the examination format has a positive effect on their own learning through motivation (2017, p. 101). Wild (2000) and Schiefele (2003) found that continuous feedback on every performance and knowledge level, promotes cognitive processing of subject content and helps to corrected inappropriate learning strategies at an early stage. For 41% of the students, the distance between previous knowledge and object knowledge is the major challenge in learning at a university (2017, p. 101). The students think that the didactic structure of the courses is accountable for the effect. Both teachers and students agree that the learning environment should offer learners active possibilities to access, reflect, apply and revise knowledge (2017, p. 103). In their study Aquario, Pais and Ghedin dispose for UDL-based courses at universities. Scientific basis of the UDL-Theory is research and practice from multiple domains within the learning sciences – education, developmental psychology, cognitive science, and cognitive neuroscience (Rose & Gravel, 2010, p. 2). Counting the scientific literacy there is a growing number of research demonstrating the UDL effectiveness. However, the 'universal' in UDL does not imply that the method of UDL offers an optimal solution for everyone. Rather, the aim is to raise awareness to recognize the need to perceive and reflect differences in learners' approaches to the subject matters or even the educational objectives. UDL represents one approach to plan learning environments for heterogeneous groups taken the various aspects of teaching and learning into consideration.

3.3 Interactive Communication Management in Multi-Professional Teams

UDL as well as all learning and teaching interaction is based on communication. Communication-orientation and special language action skills characterize pedagogical professionals work. Usually, individual experiences are configured multi-modal by symbolic means, i.e. gestures and facial expressions accompany unconsciously the spoken words or stressing them intentionally. On the one hand, they serve to communicate with others, on the other hand they simultaneously represent one's knowledge, values and goals. In order to achieve the common situation and context-related goal, the actors' interactive communication management is required. In addition to an appreciative attitude, an

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empathic understanding of the conversation partners and basic strategies for conducting a dialogue, it includes both a common language code and suitable vocabulary. Soci-lect and regional language variants make communication more difficult, restrictions of hearing and vision or diagnosis of any mental retardation limit them fundamentally. Augmentative and Alternative Communication (AAC) extends communication using symbols to include the para-verbal and non-verbal parts of communication (cf. Blechschmidt & Schräpler, 2017). The ACC-method and technology supports three kinds of individual's communicative needs (cf. Tetzchner & Martinsen, 1992):

- (1) individuals understand others' spoken language but have difficulty expressing themselves; (expressive language group)
- (2) people who temporarily use AAC in order to facilitate understanding of spoken language as well to express themselves or people who speak but have difficulty being understood (supportive language group)
- (3) AAC is a permanent means of receptive and expressive communication (alternative language group)

A second aspect which influences communication is working in multi-professional teams. In order to teach children the rules and values of nature, culture, society and economy (e.g. Framework guidelines for Kindergarten in Alto Adige, 2009, p. 54), institutions collaborate with different professionals. Professional groups with quite similar apprenticeship or degrees of specialization, nevertheless demonstrate different ideas of interventions (Speck/Olk & Stimpel, 2011, p. 194). Knowledge about these different professional ethical standards helps to get aware about programmatic demands fighting against pragmatic requirements in time.

4. Implemented Curriculum at the Free University of Bolzano

Educational and learning processes are part of the educational at a macro-level. At a meso-level, the teaching and learning situation depends on the institutional interpretation of policy programs and on the instructional quality of teaching situations. Helmke & Helmke (2015) differentiated interdependencies of interaction in the offer-use-model.

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The quality of educational and learning processes has an immediate effect, for example in performances and attitudes. However, it manifests itself in long-term outcomes, such as professional success or social participation (cf. Ditton 2010). This section explains the implemented curriculum at institutional and interactional level connected to the UDL-method.

4.1 Institutional Level

At the master's program in education for Primary Education of the Free University of Bolzano, students deepen their knowledge in the fields of general didactics and the basics of teaching and learning processes. In the so-called laboratories (courses) the main topics of the lecture are addressed such as socio-cultural, anthropological and institutional factors influencing the lesson planning as well as the development of learning arrangements. Thus, the course concept tackles the module planning given at the macro-level into consideration and transfers them to the courses at a meso-level. The purpose of the laboratories is to enable students to develop an action-oriented approach in concrete everyday situations at a micro-level. An appropriate place to explore topics, to discover new things or notice connections as well as to question interrelations is the learning workshop (in German: Lernwerkstatt). The EduSpace Learning Workshop at the Bressanone campus opens up the space and the opportunity to develop hypotheses, to explore answers, as well as to present and to discuss results. In doing research-based learning, one's own educational process could become the object of reflections.

4.2 Level of Interaction

Cognitive assumptions and constructivist learning theory conduct the didactical structure of the course. Important for this are the concepts of situated cognition, expository teaching and cognitive apprenticeship for designing an integrated learning environment (Collins et al. 1989). According to these the following didactic design principles for an integrated learning environment (Reinmann & Mandl, 2006) are outlined:

- (1) Expository Teaching: The teacher is in control of presenting the subject matter and directs the students through the lesson.

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(2) Situated-Cognition

- a. Anchored Instruction: a framework story in with embedded authentic problems gives narrative anchors
- b. Cognitive Flexibility: in order to confront learners with issues close to reality, complexity is not reduced
- c. Cognitive Apprenticeship: Introduction to the culture of experts through authentic interactions with individual and situational cognitive support (coaching, scaffolding or fading)

The laboratories follow the sequences of a project-oriented teaching method (Frey & Frey-Eiling, 2011). However, the project-initiative is already specified. It regards the implementation of innovative teaching and learning methods in kindergartens and schools, such as podcasts, video tutorials, as well as UDL materials for teaching and learning situations. The introductory phase even shows parallels to the first step for lesson planning by Klafki (1964), the factual analysis. The structure of lesson planning of Arnold & Koch-Priewe (2010) starts with the content and thematic analysis as well. Methodically the jigsaw technique suits to discuss the project-initiative (Frey-Eiling & Frey, 2011). In a first step, the learning groups open up the executive dimension of the UDL guidelines. The expert groups are responsible for translating the WHY, WHAT and HOW of learning from the English original into German and then explaining the characteristics to each other in their own words (Fig. 1: a). Thus, the verbalization of new factual knowledge prepares the students to apply it. In interpreting the foreign language knowledge in the expert groups and later in the entire learning group, the personalization in the learning process can take place (Schratz & Weiser, 2004).

The students apply their new knowledge directly, in selecting two pieces from the materials out of EduSpace-Learning Workshop and assigning them to one of the nine squares of the UDL guidelines in partnership. In addition, by allocating the findings, the students summarize their knowledge of facts and processes again verbally. Moreover, they reflect mutual on their own skills. The non-linear procedure of perception, classification, assessment and expectation are sufficient but not necessary conditions for the acquisition of skills and further development of highly specialized expertise (Neuweg 2000).

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Taken the basic concept of EduSpace Learning Workshop (see Stadler-Altmann, 2018a & 2018b) in consideration, students were stimulated to develop some independence in their field of activity in the first work stage. During the course, the experts for the UDL-square 'Engagement' explore for corresponding materials located in the Learning workshop in pairs. The experts for the UDL-Square 'Representation' as well as 'Action & Expression' act in the same way.

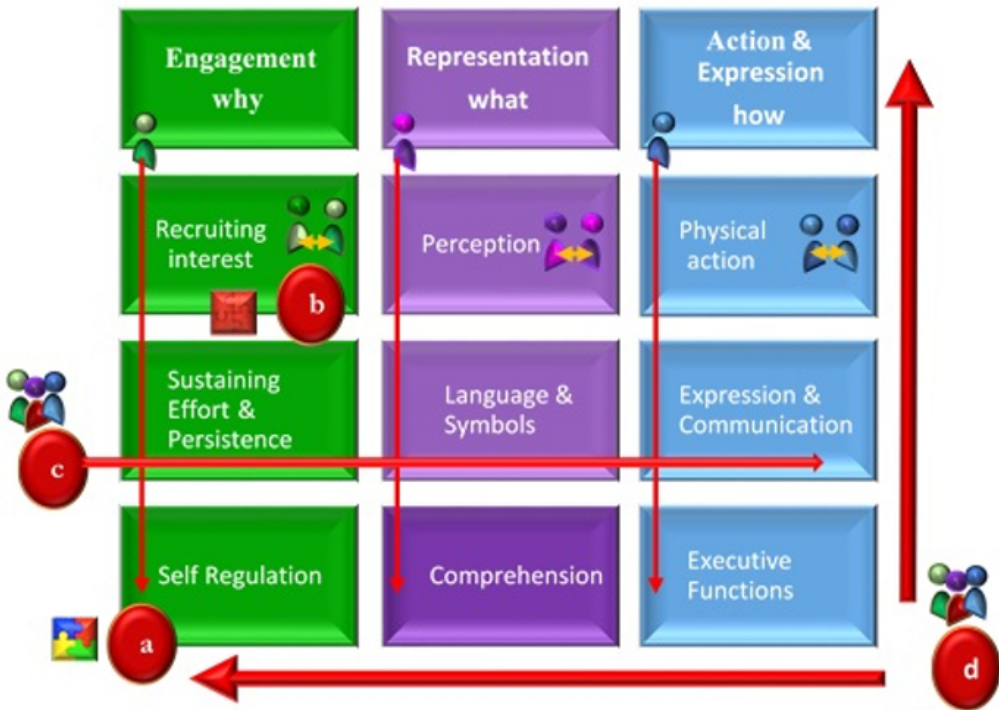


Figure 1- Fig. 1: UDL-Guidelines (CAST 2011) with own additions

The experts present their findings in the course's plenum in order to discuss the respective selection (Fig. 1: b). Already Vygotsky (1986) and Piaget (1990) emphasized the im-

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portance of cognitive and cooperative engagement with the subject. From the developmental psychology perspective, 'engagement' represents an opportunity to achieve a higher level of understanding, but at the same time it carries the risk of unsteadily participation, which turns results in misbalanced learning success. The personalized learning process is a positive aspect of peer-to-peer consulting. Each expert group is responsible to document and preserve the results of the working stage with the ICT tools offered by Moodle (Open Learning Environment, OLE). In doing so, it distributes benefits to the entire learning community.

In the second work stage, students strengthen their activities in material development. It is about offering different media and presentation formats (language & symbols) to promote learning through perception and discovery (expression & communication). To realize the didactic principle of life proximity, the ideas need a specific and embedding teaching situation (Fig. 1: c). In small groups students organize the contents of the chosen subject by setting a focus, formulating the objective of the lesson and determining the target-oriented learning strategies (sustaining effort & persistence).

To develop the material in a way that offers various options for understanding, supports self-directed learning and finally promotes self-assessment and self-reflection (Fig. 1: d), is the challenge in the third stage for the students work. Creating forms for representation of abstract text elements as well as mental models are signs of a successfully personalized learning process (Haas, 2006).

In a final step, the group evaluates collaboratively the learning products of the work stages based on UDL principles and the cooperation within. An approved tool to promote discussions about content and expertise is the Diamond Ranking (Rockett & Percival 2002, p. 99). Alternately, small group activity can intensify interaction by questioning and commenting the rankings. This can initiate further discussions e.g. about the intended and the actually observed teaching/learning behavior and thereby initiate the next step of understanding: the reconsideration of a planning of the course of instruction. A discussion about the quality of cooperation within the group can be stimulated using the 100-point method (Bastian/Combe & Langer, 2015). The basic idea is, to trigger the discourse about the well-founded distribution of one hundred points among the group members. Students have to perform the task of distributing the 100 points, they have to look for alternative solutions, come to a common decision and be

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able to present the point of view. The collation in plenary allows a comparison with other options of consideration.

The syllabus describes formal criteria for implementation of the course concept for general didactics II as well as the competencies which have to be achieved - in accordance with the Dublin Descriptors - and the examination procedures. The final oral examination is based on a written work and the presentation of developed material including questions on three requirement levels: knowledge, transfer, assessment (conceivable as an E-Portfolio). The oral examination consists of reconstructing the connection between knowledge, ability and reflection. a factually founded and critical-constructive examination of the topic shows up a comprehensive knowledge Excellent skills include uncovering lines of argument and premises and can also be expressed in a critical reasoning or a well-considered outlook. Even students with Special Learning Disabilities (SLD) are able to profit from the UDL-based learning environment. They can select the most useful setting (e.g. ICT tools or peer tutoring) to train their competencies (Arcan-geli, Emili & Sannipoli, p. 20).

5. The UDL-Concept and current research of teacher education

In the following section the theoretical (see chapter 1 to 3) and methodological reflections (see chapter 4) on UDL are connected to current educational research in academic teacher training.

Hascher (2014, p. 545) identifies five fields which influences the effectiveness: institutional, curricular, individual and occupational and social perspectives. The setting described above raises up the question to what extent students acquire the targeted competencies and analyzes it from the perspective of teachers and learners. The subjective fit between personal (e.g. individual abilities) and situational conditions (e.g. work requirements) has a decisive influence on the success of studies, hence the study includes the atomistic approach of the Person-Environment-Fit-Theory (Edwards et al. 2006). The survey instrument of the P-E Fit study by Bohndick, Rosman, Kohlmeyer and Buhl (2017) is used. The results could help to make teacher training more process-oriented. Moreover, it is an essential feedback for the lecturers (cf. Heiner & Wildt, 2013).

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A recent study on technologically modern knowledge transfer and pedagogically appropriate learning environments by Gördel, Schumacher & Stadler-Altmann (2018, p. 111) emphasizes that the design of an integrated learning environment for practically facts for teaching, material development and for practicing procedural application knowledge proves to be complex. It bears the risk of being too demanding, especially in the initial phase. The extent to which OLE promotes personalized learning as a hypermedia learning space with group-specific access functions is examined. Starting from legally secure structures, technically stable systems and media competence, e-portfolios unfold their benefits primarily through regular and serious use. At the learners' position, this presupposes an interest in self-control and a willingness to be critical and on the part of the teachers a prompt and differentiated feedback. According to Häcker (2011), both aspects are problematic, because the work alliance of teachers and students is not necessarily voluntary or always self-motivated.

A questionnaire asks for the offer-quality at the interaction level according to the 10 characteristics defined by Meyer (2003). In order to map the student's usage of the offer to build up individual subject and methodological knowledge as well as self- and social competences (cf. Lehmann & Nieke, 2007), it is appropriate to document the subjective fit of significance and degree of fulfillment of action competences after each work stage based on a five-grade scale.

Construct	Item example	
Demands/ <i>Competence components</i>		elements of high quality teaching
Self-discipline	<ul style="list-style-type: none"> • set own working targets and behavioral goals • self-regulation and self-reflection • pick-up advices 	<ul style="list-style-type: none"> • high proportion of real learning time • transparent performance expectations
Academic Activities	<ul style="list-style-type: none"> • apply knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the field of study 	<ul style="list-style-type: none"> • evident structure • distinct content • prepared environment

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<p>Learning Strategies</p>	<ul style="list-style-type: none"> • planning necessary steps for work and carry them out systematically • Apply different working techniques/ procedures appropriately and according to the situation • communicate conclusions -and the knowledge and rationale underpinning these- to specialist and non-specialist audiences clearly and unambiguously • <i>Identifying and analyzing problems, testing various solutions and applying problem-solving strategies appropriate</i> 	<ul style="list-style-type: none"> • large variety of methods • intelligent exercising
<p>Social skills</p>	<ul style="list-style-type: none"> • acting in line with partners and situations • peer-coaching 	<ul style="list-style-type: none"> • individual assistance

Table 1 - Interrelationship of P-E-Fit and elements of high quality teaching

The following correlations are focused in our prospective study

- (1) Clear structuring and professional competence. The more clearly the content in each stage is defined, the better the students feel able to apply the knowledge acquired in the respective work stage in self-designed contexts of action.
- (2) Performance expectations and self-competence. The more regular the individual feedback on learning progress is offered, the better the students feel able to think about themselves.
- (3) Intelligent practice and methodological competence. The more precise the teacher's support, the better students feel able to present the results of their work.
- (4) Diversity of methods and social competence. The more diverse the methods, the stronger the students see themselves as being able to act according to the situation.

An additional comparison of provider and user perspectives offers potential starting points for rationing the concept, i.e. to inspect both the curriculum and the interaction process, moreover to reconsider if necessary.

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UDL opens up possibilities of improving the skills of students for differentiated support as well as the planning and design of inclusive teaching/learning arrangements in heterogeneous learning groups, whether it is within their own learning at university, when students join their internship, or teach inclusively in their future position in kindergartens and schools.

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1. This contribution, fully shared by the four authors, was drawn up as follows: paragraph 1 and 4 by Susanne Schumacher; paragraph 2 and 3 by Enrico Angelo Emili; paragraph 5 by Ulrike Stadler-Altman.
2. In the German-speaking schools of the province of Bolzano.
3. Cohen's d is defined as the difference between two means divided by a standard deviation for the data.

References

- Allemann, C. (2013). Bildung für alle, Diversität und Inklusion. Internationale Perspektiven Paderborn/ München/ Wien/ Zürich: Ferdinand Schöningh
- Altrichter, H. et al. (2017). Schule aus Sicht verschiedener Akteure. In: Burger, T. / Miceli, N. (eds.): Empirische Forschung im Kontext Schule - Einführung in theoretische Aspekte und methodische Zugänge, Wiesbaden, Springer, pp. 125-139
- American Psychiatric Association (2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, D.C.: APA (trad. it.: DSM-5. Manuale diagnostico e statistico dei disturbi mentali. Quinta edizione. Milano: Raffaello Cortina, 2014).
- Arcangeli, L., Emili, E.A. & Sannipoli, M. (2017). *Students with Special Educational Needs at University: autobiographical narration and self-functioning in the inclusive perspective*. ITALIAN JOURNAL OF SPECIAL EDUCATION FOR INCLUSION. Vol 5, N°2, Lecce: Pensa MultiMedia Editore, pp. 93 – 105
- Arnold, K.-H./Koch-Priewe, B. (2010). Traditionen der Unterrichtsplanung in Deutschland. In: Bildung und Erziehung 63 (4), pp. 401- 416.
- Arnold, K.-H./Koch-Priewe, B. (2011). The merging and the future of the classical German traditions in General Didactics: A comprehensive framework for lesson planning. In: Hudson, B./Meyer, M. A. (eds.): Beyond fragmentation: *Didactics, learning and teaching in Europe*. Opladen: Verlag Barbara Budrich, pp. 252–264
- Aquario, D., Pais, I. & Gehdin, E. (2017). Accessibilità alla conoscenza e Universal Design. Uno studio esplorativo con docenti e studenti universitari. ITALIAN

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DOI: <https://doi.org/10.6092/issn.1970-2221/8483>



- JOURNAL OF SPECIAL EDUCATION FOR INCLUSION. Vol 5, N°2, Lecce:
Pensa MultiMedia Editore, pp. 93 – 105
- Baake, D. (1997). *Medienpädagogik*. Tübingen: Niemeyer
- Bagattini, A. (2011). *Das Problem des perzeptiven Wissens*. Walter de Gruyter GmbH & Co.KG: Berlin
- Bastian, J./Combe, A. & Langer, R. (2015). *Feedback-Methoden*, Beltz Verlag, Weinheim Basel
- Biggs, J.B. & Tang, C. (2011). *Teaching for Quality Learning at University*. (4th Ed.). Maidenhead: McGraw Hill Education & Open University Press
- Bischof, L. M. (2017). *Schulentwicklung und Schuleffektivität. Ihre theoretische und empirische Verknüpfung*. Springer VS: Wiesbaden
- Blechs Schmidt, A. & Schröppler, U. (2017) (eds.). *Unterstützt erzählen – erzählen unterstützen*. Basel: Schwabe Verlag
- Blömer, D. et al. (2015) (eds.). *Perspektiven auf inklusive Bildung*, Jahrbuch Grundschulforschung 18, Wiesbaden: Springer
- Bohdick, C./ Rosman, T./ Kohlmeyer, S. & Buhl, H. (2017). The interplay between subjective abilities, subjective demands, and its relationship with academic success. An application of the person-environment fit theory Higher Education. *Advance on-line publication*.
- Booth, T. & Ainscow, M. (2002). *Index for Inclusion: developing learning and participation in schools*. Revised edition 2002. Bristol: CSIE <https://www.eenet.org.uk/resources/docs/Index%20English.pdf> [18.06.2018]
- Bray, B. & McCalskey, K. (2010). Personalization vs. Differentiation vs. Individualization Chart. <http://www.personalizelearning.com/search?q=chart> [18.06.2018]
- Canevaro A. (2015). *Nascere fragili. Processi educativi e pratiche di cura*. Bologna: EDB.
- Center of Applied Special Technology (CAST 2011). *Universal Design for Learning. Guidelines version 2.0*. Wakefield, MA: Author. Online verfügbar unter: <http://www.udlcenter.org/aboutudl/udlguidelines/downloads>
- Collins, A., Braun, J.S. & Newman, S.E. (1989). Cognitive Apprenticeship: Teaching the Crafts of Reading, Writing and Mathematics. In L. B. Resnick (ed.), *Knowing, Learning and Instruction. Essays in Honour of Robert Glaser* (S. 453-494). Hillsdale, NJ.

Enrico Angelo Emili, Susanne Schumacher, Ulrike Stadler-Altman – *Effective Learning Experiences with UDL in teacher training at Universities*

DOI: <https://doi.org/10.6092/issn.1970-2221/8483>



- Courey S., Tappe P., Siker J., LePage P. (2012). Improved Lesson Planning With UDL. *Teacher Education and Special Education* 36 (1), pp. 7-27.
- Davies, P/ Schelly, C. & Spooner, C. (2017). Measuring the Effectiveness of Universal Design for Learning Intervention in Postsecondary Education. *Journal of Postsecondary Education and Disability*, 26(3), 195 – 220
- Ditton, H. (2010). Evaluation und Qualitätssicherung. In Tippelt & Schmidt (Hrsg.) *Handbuch Bildungsforschung*. Wiesbaden: Springer, pp 607 - 625
- Dlugosch, A. (2011). Der „Fall“ der Inklusion: Divergenzen und Konvergenzen in Professionalitätsvorstellungen. In: Lütje-Klose, B. et al.(eds.) *Inklusion in Bildungsinstitutionen – Eine Herausforderung an die Heil-und Sonderpädagogik*, 135-142
- Döbert, H.& Weishaupt, H. (2013) (eds.). *Inklusive Bildung professionell gestalten – Situationsanalyse und Handlungsempfehlungen*. Münster und New York: Waxmann
- Döring N. & Bortz J. (2016). Untersuchungsdesign. In: Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften. Springer-Lehrbuch. Springer, Berlin, Heidelberg
- Dzengel, J. (2017). Kasuistik in der Lehrerbildung als Vermittlungsinstanz zwischen Theorie und Praxis. In: Burger, T. / Miceli, N. (eds.): *Empirische Forschung im Kontext Schule –Einführung in theoretische Aspekte und methodische Zugänge*, Wiesbaden: Springer, pp. 125-139
- Feuser, G. (1998). Gemeinsames Lernen am gemeinsamen Gegenstand. Didaktisches Fundamentum einer Allgemeinen (integrativen) Pädagogik. In Hildeschiedt, A. & Schnell, I. (eds.), *Integrationspädagogik. Auf dem Weg zu einer Schule für alle*. Weinheim, München: Juventa, pp. 19-35
- Frey, K. & Frey-Eiling, A. (2011). Die Projektmethode. In Wiechmann, J. (ed.), *Zwölf Unterrichtsmethoden Weinheim: Beltz, pp. 172–179*
- Frey-Eiling, A. & Frey, K. (2011). Das Gruppenpuzzle. In Wiechmann, J. (ed.), *Zwölf Unterrichtsmethoden Weinheim: Beltz, pp. 52–59*
- Gördel, B.-M./ Schumacher, S.& Stadler-Altman, U. (2018). Mediengestützte Seminarformen – zeitgemäße Wissensvermittlung oder technische Spielerei? In:

Enrico Angelo Emili, Susanne Schumacher, Ulrike Stadler-Altman – *Effective Learning Experiences with UDL in teacher training at Universities*

DOI: <https://doi.org/10.6092/issn.1970-2221/8483>



- Othmer, J./ Weich, A. & Zickwolf, K. (eds.): *Medien, Bildung und Wissen in der Hochschule*. Wiesbaden: SpringerVS
- Haas, S. (2006). *Vom Schreiben in Bildern. Visualität, Narrativität und digitale Medien in den historischen Wissenschaften*. *zeitenblicke* 5, Nr. 3
- Häcker, T. (2011). Portfolio revisited – über Grenzen und Möglichkeiten eines viel versprechenden Konzepts. In T. Meyer, K. Mayrberger, S. Münte-Goussar & C. Schwalbe (eds.), *Kontrolle und Selbstkontrolle* (S. 161–183). Wiesbaden: VS-Verl. für Sozialwissenschaften.
- Häcker T. (2012). Portfolioarbeit im Kontext einer reflektierenden Lehrer/innenbildung. In: Egger R. & Merkt M. (eds.) *Lernwelt Universität. Lernweltforschung*, vol 9. Wiesbaden: VS Verlag für Sozialwissenschaften
- Hascher, T. (2014). Forschung zur Wirksamkeit der Lehrerbildung. Terhart, E./ Bennewitz, H. & Rothland. M. (eds.), Münster: Waxmann, pp. 542-571.
- Hattie, J. (2012). *Visible Learning for Teachers: Maximizing Impact on Learning*, Routledge: London/New York
- Heiner, M. & Wildt, J. [eds.]: *Professionalisierung der Lehre. Perspektiven formeller und informeller Entwicklung von Lehrkompetenz im Kontext der Hochschulbildung*. Bielefeld: Bertelsmann 2013, pp. 27-57.
- Helmke, A. & Helmke, T. (2015). Unterrichtsdiagnostik als Ausgangspunkt für Unterrichtsentwicklung. In Fischer CH.G. Rolff (ed.), *Handbuch der Unterrichtsentwicklung*. Weinheim: Beltz, pp. 242 – 257
- Ianes, D. (2009). *Die besondere Normalität*. München/ Basel: Ernst Reinhardt Verlag
- Kaiser & Brettschneider (2011). Fallstudie. In: Wiechmann, J. (eds.), *Zwölf Unterrichtsmethoden* Weinheim: Beltz, pp. 52–59
- Karlegger, I. & Meraner, R. (2013). Inklusive Bildung in der Autonomen Provinz Bozen – Südtirol. In: Jantowski, A. (eds.), *Gemeinsam leben. Miteinander lernen*. Bad Berka: Thüringer Institut für Lehrerfortbildung, Lehrplanentwicklung und Medien (Thillm), pp. 70-85
- Klafki, W. (1964) Didaktische Analyse als Kern der Unterrichtsvorbereitung. In: Roth, H. - Blumenthal, A. (eds.), *Didaktische Analyse*, Reihe: Auswahl Reihe A, Bd. 1, Hannover: Schroedel, pp. 5-34

Enrico Angelo Emili, Susanne Schumacher, Ulrike Stadler-Altman – *Effective Learning Experiences with UDL in teacher training at Universities*

DOI: <https://doi.org/10.6092/issn.1970-2221/8483>



- Klippert, H. (2010). *Heterogenität im Klassenzimmer*. Wie Lehrkräfte effektiv und zeitsparend damit umgehen können. Weinheim/ Basel: Beltz-Verlag
- Köllner, W. (2012) *Sinnbilder für Sprache. Metaphorische Alternativen zur begrifflichen Erschließung von Sprache*. deGruyter: Berlin
- Lehmann, G. & Nieke, W. (2000). Zum Kompetenzmodell. URL:http://sinus-transfer.uni-bayreuth.de/module/modul_10pruefen_von_kompetenzzuwachs/kompetenzmodell.html [15.16.2018]
- Meyer, H. (2003). *Zehn Merkmale guten Unterrichts. Empirische Befunde und didaktische Ratschläge*, In: Pädagogik 10/03, S. 36 - 43
- Moser, V. & Demmer-Dieckmann, I. et al. (2013). Professionalisierung und Ausbildung von Lehrkräften für inklusive Schulen, In: Moser, V. (eds.), *Die inklusive Schule – Standards für die Umsetzung*. Stuttgart: Kohlhammer, pp. 155-174
- Neuweg, G. H. (2000). *Wissen – Können – Reflexion. Ausgewählte Verhältnisbestimmungen*. Innsbruck/ Wien/ München: Studien-Verlag.
- Piaget, J. (1990). *The child's conception of the world*. New York: Littlefield Adams.
- Prenzel, A. (2015). Didaktische Diagnostik als Element alltäglicher Lehrarbeit – „Formatives Assessment“ im inklusiven Unterricht Amrhein, B. & Ziemer, K. (eds.): *Diagnostik im Kontext inklusiver Bildung – Theorien, Ambivalenzen, Akteure, Konzepte*. Bad Heilbrunn: Klinkhardt
- Preuss-Lausitz, Ulf (2005). Entwicklungslinien und Zukunftsperspektiven der Integrationspädagogik. Es ist normal, verschieden zu sein - aber was folgt daraus? In: Sonderpädagogische Förderung, 1, pp. 70-80
- Reinmann, G. & Mandl, H. (2006). Unterrichten und Lernumgebungen gestalten. In A. Krapp & B. Weidenmann (Hrsg.), *Pädagogische Psychologie* (S. 613-658). Weinheim: Beltz.
- Rödler, P (2018). *Die Forderung nach Inklusion in ihrer Bedeutung für Didaktik und Fachdidaktik*. Innsbruck: bidok
- Rockett, M. and S. Percival (2002). *Thinking for Learning*. Stafford, Network Educational Press
- Rose, D., & Meyer, A. (2002). *Teaching every student in the digital age*. Alexandria, VA: ASCD.

Enrico Angelo Emili, Susanne Schumacher, Ulrike Stadler-Altman – *Effective Learning Experiences with UDL in teacher training at Universities*

DOI: <https://doi.org/10.6092/issn.1970-2221/8483>



- Rose, D.H. & Gravel, J.W. (2010). Universal design for learning. In E. Baker, P. Peterson, & B. McGaw (eds.). *International Encyclopedia of Education, 3rd Ed.* Oxford: Elsevier.
- Rychen D.S. & Salganik, L.H. (Eds.). (2003). *Key Competencies for a Successful Life and a Well-Functioning Society.* Göttingen: Hogrefe & Huber.
- Schratz, M. & Westfall-Greiter, T. (2010). *Das Dilemma der Individualisierungsdidaktik. Plädoyer für personalisiertes Lernen in der Schule.* Journal für Schulentwicklung 14(1), S. 18-31.
- Selter, C./ Hußmann, S./ Hößle, C./ Knipping, C./ Lengnink K. & Michaelis J. (2017) (eds.). *Diagnose und Förderung heterogener Lerngruppen: Theorien, Konzepte und Beispiele aus der MINT-Lehrerbildung.* Münster/ New York: Waxmann
- Speck, K./ Olk, T. & Stimpel, T. (2011). Auf dem Weg zu multiprofessionellen Organisationen? Die Kooperation von Sozialpädagogen und Lehrkräften im schulischen Ganzttag. Empirische Befunde aus der Ganztagsforschung und dem Forschungsprojekt "Professionelle Kooperation von unterschiedlichen Berufskulturen an Ganztagschulen" (ProKoop) In Helsper, W. & Tippelt, R.[eds.]: *Pädagogische Professionalität.* Weinheim u.a.: Beltz. - (Zeitschrift für Pädagogik, Beiheft; 57), pp. 184-201
- Stadler-Altman, Ulrike (2018a), EduSpaces – Räume für kooperativen Theorie-Praxis-Transfer. Pädagogische Werkstattarbeit als Ansatz pädagogischer Professionalisierung, in: Peschel, M.; Kelkel, M. (Hrsg.), *Fachlichkeit in Lernwerkstätten. Kind und Sache in Lernwerkstätten,* Bad Heilbrunn: Klinkhardt, S. 227-245.
- Stadler-Altman, U. (2018b) EduSpace Lernwerkstatt als Verknüpfungsraum zwischen Praktikum und universitärer Lehre, in: Baar, R.; Trostmann, S.; Feindt, A. (Hrsg.), *Lernwerkstätten als pädagogisch-didaktischer Lern- und Erfahrungsraum. Potential und Herausforderung für Lehrerbildung und kindheitspädagogische Studiengänge,* Bad Heilbrunn: Klinkhardt (in press).
- Tetzchner, S. V., & Martinsen, H. (1992). *Introduction to symbolic and augmentative communication.* San Diego, Calif, Singular Pub. Group.
- Vygotsky, L. (1986). *Thought and language.* Boston: MIT Press.

Enrico Angelo Emili, Susanne Schumacher, Ulrike Stadler-Altman – *Effective Learning Experiences with UDL in teacher training at Universities*

DOI: <https://doi.org/10.6092/issn.1970-2221/8483>



- Wischer, B. (2009). Umgang mit Heterogenität im Unterricht – Das Handlungsfeld und seine Herausforderungen. In: <https://bsi.tsn.at/sites/bsi.tsn.at/files/dateien/lz/Umgang%20mit%20Heterogenitaet.pdf> [eingesehen am 13.06.2018]
- Wocken, H. (2010). Integration & Inklusion. Ein Versuch die Integration vor der Abwertung und die Inklusion vor Träumereien zu bewahren. In: Stein, A./ Krach, S. & Niediek, I. (eds.) *Integration und Inklusion auf dem Weg ins Gemeinwesen. Möglichkeitsräume und Perspektiven* Bad Heilbrunn: Klinkhardt, pp. 204-234.
- Wocken, H. (2011). Was ist Inklusiver Unterricht? Eine Checkliste zur Zertifizierung schulischer Inklusion. In: *Das Haus der inklusiven Schule. Baustellen – Baupläne – Bausteine*. Hamburg: Feldhaus Verlag, pp. 109-139.

Internet resources/ Fonti web [as consulted online on/ ultima consultazione 06.07.2018]

EduSpace-Lernwerkstatt

<https://www.unibz.it/de/faculties/education/eduspace-lernwerkstatt/>

Evidence-based methods of teaching diagnostics and development

<http://www.unterrichtsdiagnostik.de>

Framework Guidelines for Kindergarden and Primary School in South Tyrol

<http://www.provinz.bz.it/schulamt/kinder-schueler-eltern/kindergarten.asp> http://www.provinz.bz.it/schulamt/aktuelles/416.asp?367_action=300&367_image_id=152086

General Framework Guidelines for Primary and Secondary School in South Tyrol

<http://www.provinz.bz.it/schulamt/kinder-schueler-eltern/grundschule.asp>

Centre for Studies on Inclusive Education (CSIE, 2002). *Index for Inclusion*

<https://www.eenet.org.uk/resources/docs/Index%20English.pdf>

Law on the participation and inclusion of people with disabilities

http://www2.consiglio-bz.org/documenti_pdf/idap_353322.pdf

Organization for Economic Cooperation and Development (OECD) (2005) *Definition and Selection of Competencies (DeSeCo)*

<http://www.oecd.org/pisa/35070367.pdf>

Enrico Angelo Emili, Susanne Schumacher, Ulrike Stadler-Altman – *Effective Learning Experiences with UDL in teacher training at Universities*

DOI: <https://doi.org/10.6092/issn.1970-2221/8483>



Organization for Economic Cooperation and Development (OECD) (2014). *DeSeCo: Definition and Selection of Competencies – Concept*. <http://www.oecd.org/education/skills-beyond-school/definitionandselectionofcompetenciesdeseco.htm>

Special Educational Needs (SEN, 2012)

https://aipd.it/aipd_scuola/la-direttiva-ministeriale-sui-bes-bisogni-educativi-speciali-dir-27122012/

United Nations (UN, 2006). *Convention on the Rights of Persons with Disabilities*

<http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>

United Nations Educational, Scientific and Cultural Organization (UNESCO, 1994).

Salamanca Statement

http://www.unesco.org/education/pdf/SALAMA_E.PDF

World Health Organization. International statistical classification of disease and health related problems. ICD-11. (Who: Ginevra, 2018)

<https://icd.who.int/>

Italian Laws/Riferimenti legislativi

MIUR (1971). Legge 30 marzo 1971, n. 118

MIUR (1975). Circolare Ministeriale 8 agosto 1975, n. 227

MIUR (1977). Norme sulla valutazione degli alunni e sull'abolizione degli esami di riparazione nonché altre norme di modifica dell'ordinamento scolastico. Legge 4 agosto 1977, n.517

MIUR (2012). Strumenti d'intervento per alunni con bisogni educativi speciali e organizzazione territoriale per l'inclusione scolastica. Direttiva Ministeriale 27 dicembre 2012

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